

# Community Outreach and Engagement Vanderbilt-Ingram Cancer Center

## Catchment Area

Vanderbilt-Ingram Cancer Center (VICC) is located in a region with some of the highest cancer incidence and mortality rates in the United States. VICC has a geographically wide and demographically diverse catchment area of 123 counties across Tennessee, western Kentucky, and northern Alabama, from which 90 percent of VICC cancer patients are currently drawn. Seventy-one of the 123 counties (57 percent) are classified as rural, where 25 percent of the catchment area population lives. Demographic characteristics vary substantially within the catchment area, with a younger, more racially and ethnically diverse population in urban areas and an older, less diverse population in rural areas.



## Community Engagement Focus

- **Aim 1:** Strengthen the capacity for bidirectional community engagement in basic science research focused on innovative biospecimen-based strategies for early detection of lung cancer.
- **Aim 2:** Facilitate the inclusion of community/patient perspectives in the discovery of candidate biomarkers for early detection of lung cancer.

## At a Glance

This project will integrate community engagement with discovery science using biomarker-based modalities for early detection of lung cancer as a paradigm.

## Collaborators

This project brings together the following community members and scientific investigators:

The VICC Community Advisory Board (CAB), with 20 members residing across the catchment area, represents community stakeholders, identifies priorities, and aligns them with VICC research and outreach.

The Meharry-Vanderbilt-Tennessee State Cancer Partnership (MVTCP) CAB, with 20 members residing in Nashville, represents community stakeholders and identifies priorities specifically focused on cancer health disparities.

The VICC Research Advocacy Program (RAP) trains cancer survivors and caregivers to join investigative teams to bring their perspective to their research.

Within the eight VICC research programs, VICC basic, clinical, and population science investigators conduct research across the cancer care continuum that is responsive to catchment area needs and priorities set forth by the community.



## The Approach

**Aim 1:** We developed training modules for community stakeholders to learn about cancer research and modules for research investigators to learn about community outreach and engagement. This project was reviewed by our Community Outreach and Engagement (COE) team, community health educators, and patient research advocates. Based on their feedback, iterative changes were made to the content and the evaluation material.

The training modules for community stakeholders cover the following topics: Basics of Cancer, Basics of Cancer Research, and Basics of Clinical Trials. The training was shared with the VICC CAB, and their input was incorporated into finalizing the training modules. Next steps include placing the training on the VICC COE website and making it available to our patient navigators, community educators, and community partners for their use. In addition, the training will be made available to other NCI COE programs for their use and modification. We will track evaluations and feedback and make ongoing iterative changes.

To train investigators on community engagement practices, we deployed a virtual seminar for VICC cancer investigators. The overall goal was to help cancer investigators understand community-engaged research, how it can successfully be integrated into their research, and connect them with aligned tips and resources. Learning objectives included: (1) understanding community engagement and community-engaged research, (2) acknowledging why community engagement is important and how to use it in research, and (3) being familiar with available resources for a variety of community engagement options.

In addition, we created a COE intake form, which is a tool for VICC investigators to easily submit requests for COE services. Lastly, we identified one liaison from each of the eight VICC research programs and hold quarterly meetings in order to have ongoing interaction between the research programs and the community.

We are in the process of developing lung cancer screening materials, which can be used not only for Aim 2, but across multiple studies and events.

We finalized the lung cancer infographic, which covers the burden of lung cancer and general eligibility criteria. The infographics have a QR code to the **VICC Lung Cancer Screening webpage**.

The Lung Cancer Screening webpage goes into greater detail about lung cancer screening, eligibility criteria, and insurance coverage. It also links viewers to basic information on lung cancer, screening information and locations, smoking cessation resources, and VICC clinical trials. Short, 2–3 minute YouTube videos recorded using low-literacy language are also in development and will be posted on this webpage. Videos have been delayed due to the COVID-19 pandemic.

These resources were created to complement each other. The infographic has been widely disseminated throughout the community through social media, educational programs, and newsletters. The simple and inviting design was constructed to help readers determine if they need to be screened for lung cancer. If they decide that they need to be screened, they can then access the VICC Lung Cancer Screening webpage, which provides detailed information on next steps.

We will disseminate the lung cancer screening resources, when complete, to the public through the VICC and MVTCP websites, email listservs, and social media channels, and through NCI to interested stakeholders.

**Aim 2:** The goals of this aim were to isolate extracellular vesicles (EVs) from plasma of normal and lung cancer patients, send them for proteomics, and validate the results with single vesicle EV microflow cytometry. Much of our work has been on standardization of EV isolation from plasma using size exclusion chromatography (SEC).

We determined that the isolation of EVs from plasma using 35 nm SEC columns is reproducible and outperforms ultracentrifugation (UC), which is the standard

method for EV isolation. We then found some contamination with lipoproteins. Since this contamination may reduce our ability to detect EV-specific proteins, we are testing a different SEC column (70 nm pore size). Once the standardization process is done, we will perform EV isolation and processing for proteomics on the plasma samples selected and collected by our collaborators.

We are working in parallel on the standardization of a protocol for EV analysis from plasma samples by single vesicle EV microflow cytometry. Thus far, we find that EVs isolated by SEC and labelled using a lipid stain can be successfully analyzed by flow cytometry. In addition, SEC isolation is superior to directly staining EVs in plasma. We are currently refining methods for staining cargos of the purified EVs using specific antibodies, which will be used to validate putative EV biomarker candidates identified by proteomics.

Finally, we standardized an innovative single EV microflow cytometry method that we will use for validation of candidate biomarkers.

Throughout this process, our team has captured video clips of research progress. These clips will eventually be edited into a comprehensive video that can be shared with the community. We have also presented our lab progress to the VICC CAB, bringing an understanding of the development of cancer early detection basic science to the community and highlighting future opportunities for collaboration. Our VICC patient advocate has been embedded in our research project from the inception, and has provided valuable input on how to integrate this research with the community.

Overall, due to the COVID-19 pandemic, this research was delayed. We were therefore unable to proceed to the level to test biomarkers in patients and get patient input on use of a blood biomarker versus low-dose CT screening. However, we are continuing the project and expect to achieve that aim.

## Implementation Guidance

Implementation of this project was benefited by:

- Regular meetings between the COE and basic science teams
- Designated COE liaisons from each of the VICC research programs
- Involvement by a patient research advocate throughout the project
- Interaction with community advisors

Future directions for this project include the following:

- Validation of the biomarker assays in patients
- Community input on acceptability of the biomarker and comparison with low dose CT screening
- Further development of educational material for the community, including primary care providers
- Further development of integrating community engagement into discovery science with patient advocate and CAB input

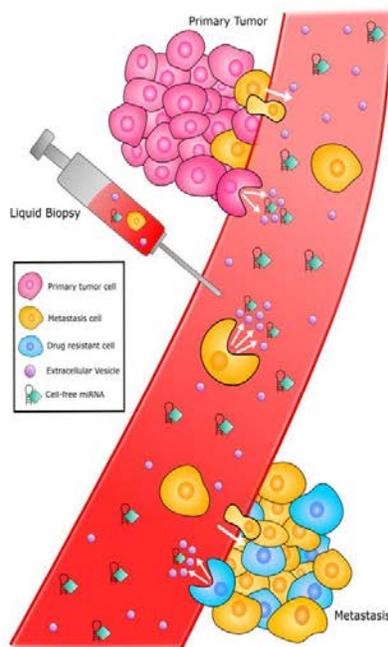
**Biomarker research is critical to the creation of a blood test for the diagnosis of lung cancer, especially early stage, asymptomatic lung cancer when it is most treatable. A Biomarker blood test will save millions of lives and incalculable human suffering, the goal of all medical professionals.**

—Kathy Leiser, VICC Research Advocate, Lung Cancer Survivor



VANDERBILT-INGRAM CANCER CENTER

### Cancer Basics 101 Training



## LUNG CANCER SCREENING

**DID YOU KNOW?**  
Lung cancer is responsible for the most cancer deaths in the U.S. of all types of cancers.  
Lung cancer symptoms usually do not appear until the cancer is already at an advanced stage.

**THE GOOD NEWS!**  
Catching lung cancer early decreases the risk of death by 20%.

**CHECK BELOW FOR SCREENING ELIGIBILITY**

### SHOULD YOU GET SCREENED?

1. ARE YOU BETWEEN 50-80 YEARS OLD?

YES →

2. DO YOU CURRENTLY SMOKE?

OR

← YES

HAVE YOU QUIT IN THE LAST 15 YEARS?

Scan here using phone camera app

For additional resources:  
CALL 861-513-3223-6580  
VISIT <http://www.vicc.org/research/lung-cancer-smoking>

## Find Out More

The COE team includes an administrative director, community health workers, patient navigators, and managers in community engagement, patient and family-centered care, communications, news/public affairs, and affiliations and advocacy. Our community-driven priorities include tobacco cessation, early detection, access to cancer care and control, hereditary cancer care, and access to clinical trials. Our formal liaison program with each of our VICC research programs enhances interactions between research and COE. View our [website](#) for more information.

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## Community outreach and engagement (COE) activities across the translational research continuum

National Cancer Institute (NCI)-designated cancer centers' COE efforts should span all cancer center programs, including basic, clinical, translational, and population research. In FY20, NCI issued a call for Cancer Center Administrative Supplements to support COE activities that focus on either basic science or the translation of evidence-based interventions into community practice. The long-term goal of the supplement initiative is to build capacity for cancer centers' COE programs to adapt and implement evidence-based programs and successfully collaborate with cancer center investigators across research programs and in partnership with community members. To learn more, visit us at: <https://cancercontrol.cancer.gov/research-emphasis/coe>